developed by Hassler:

(1) $$N = 514.29 \, XY,$$

where N = the estimated number of striped bass eggs spawned during the 24-hour period; X = the mean number of striped bass eggs collected per surface sample during the 24-hour period (12 samples maximum); and Y = the cross-sectional area of the river in square feet for mean river stage during the 24-hour period. The constant 514.29 was derived from the number of five-minute intervals in a 24-hour period (288) multiplied by the relationship of 1.0 ft^2 of river area to the mouth opening of the 10-inch diameter egg net (0.56 ft^2, equaling a ratio of 1:1.785714). Only surface samples were used in the daily egg production estimates so that data were comparable to Hassler's database.

Statistical analysis of the egg count data was performed using the SAS UNIVARIATE procedure to determine distribution of the data. Normal probability plots indicated that transformation of the count data was required; natural log transformation reduced skewness and kurtosis better than square root transformation.

In 1991, a concurrent egg study was conducted downstream at Jacob's Landing (RM 102) just upstream of the Highway 258 bridge to provide information about the possible effect of sampling location on egg production estimates and egg viability. Methods were identical to those described for Barnhill's Landing. Results were described in detail previously (Rulifson 1992b); however, a brief summary of the results is presented in this report.

RESULTS

About 95% of the possible samples (1,382 of 1,448) were examined in 1991. The remainder were not collected because of inclement weather or equipment failure.

Egg Production and Viability for 1991

The estimated number of striped bass eggs produced in 1991 was 1,837,208,211 (n=61, S.D. 65,787,080) from a total of 10,467 eggs collected in surface nets. Samples were first taken on 15 April; the first eggs appeared in Barnhill samples on 17 April (Table 1). Whether spawning occurred earlier than 15 April is unknown. Considering only the data obtained for the sampling period, spawning activity in 1991 appeared to start later than that observed in 1988 (12 April) and 1989 (16 April), and but earlier than 1990 (24 April). Spawning activity continued through 12 June 1991 for a 57-day spawning window; sampling was terminated on 14 June so any spawning in late June was not monitored. This late spawning activity was prolonged compared to 1988 (2 June) and 1989 (9 June), but similar to 1990 (12 June). In 1991, there were 41 consecutive days of spawning activity, a longer period than that observed in 1988 (27 days) and 1989 (23 days), but shorter than 1990 (50 days).